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A BOOK OF STUDIES IN PLANT FORM AND DESIGN

FIG. 1.—Bermuda Easter Lily. Flowers white, cone shaped. Height 2 feet.
FIG. 2.—Lilium Candidum. White flowers. Height 2 feet.

S. b. 47a

A BOOK OF STVDIES IN PLANT FORM WITH SOME SVGGESTIONS FOR THEIR APPLICATION TO DESIGN

BY A.E.V. LILLEY AND W. MIDGLEY

LONDON CHAPMAN AND HALL LIMITED 1895

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FIG. 3.—Violet. Five inches high, running growth.

PREFACE

ONE of the "notes" of recent decorative art has been its comparative disuse of the elements and forms of historic ornament, and its return to Nature, and especially to floral forms, for inspiration. Now it is seldom that the plant most suitable for a particular design is in season when it is wanted, and it is often so difficult (sometimes impossible) to find a drawing of the ornamental side of many plants, that the authors venture to hope that designers of all kinds will welcome a series of more or less decorative drawings and photographs from nature. Their work is, however, intended in the first instance for students, and it was felt that to them a collection of suggestive designs would be even more useful than the naturalistic drawings. The authors have tried, therefore, to show how their plant forms might be simplified and converted into ornament, and have included designs for simple space filling, and also for such processes as gesso, stencilling, wall papers, textiles, and so on.

To make the book more useful to art classes a short summary is given of the principles of design, but students are strongly recommended to study the exhaustive treatment of this important subject in Mr. F. G. Jackson's two books on *Principles and Practice of Design.*

Concise accounts are also included of the technical requirements of the different processes illustrated; information so essential in practical designing.

FIG. 4.—Mistletoe. Berries white-green.

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Fig. 5.—Ivy.

STUDIES IN PLANT FORM AND DESIGN

CHAPTER I

PRINCIPLES OF DESIGN

It is clear that no student will be able to invent a presentable piece of ornament until he has learned the difference between a good line and a bad one, between a fine form and a mean one, and between harmonious and vulgar colour. And although every one possesses this good taste in some degree, there is only one way in which a designer can develop it sufficiently for his needs; he must read a little thoughtfully and diligently in Nature's infinite book of—ornament. Without this study of Nature principles are useless. But given this, they will help.

The function of ornament is to *add interest to construction;*

FIG. 6.—Dandelion. Flowers golden yellow. Height 15 inches.

so that perhaps there is, after all, only one "principle of ornament"—that it must be *interesting*. Interesting first because of its perfect *fitness* for its purpose; so that it must never seem an unnecessary encumbrance on an object, it must appear to add to rather than detract from its usefulness. Then ornament must be interesting as an expression of skill and craftsmanship; it must never seem laboured, it must seem to be done with ease. Above all it must be interesting as an expression of life, and invention, and individuality, and yet never confused or hard to understand; it must seem to be full of thought, but thought so simplified and ordered as to be followed without fatigue.[1] Perhaps the other principles of ornament are really devices for helping the designer to fulfil this last requirement—to make the most of his invention, and to give to his ornament clearness and unity.

Let us see what principles Nature uses in one of her perfect bits of ornament, the leaf of the cyclamen, for instance (middle of Fig. 10), and consider what makes it so successful as a design.

FIG. 7.—Columbine. Two feet high. Flowers white to purple.

[1] It is true that a certain suggestion of mystery is sometimes most useful in design; but it must be quite evident that the designer intends it to be a mystery, and does not expect us to unravel it.

FIG. 8.—Goatsbeard. Flowers yellow; long green sepals 2 inches across.

First notice its striking outline—a bold uncommon curve, full of interest and variety from the nearly straight point to the full rounded spiral base; and yet a curve which never hesitates about its path, which increases in curvature *gradually* and at a certain ordered rate throughout. This is an example of the great principle of *gradation*. If the student will consider how much of the beauty of a child's face is due to the subtle *gradations* of light and shade and colour, or how much more

Fig. 9.—Escholtzia. Flowers golden yellow. Height 15 inches.

beautiful is a perspective of a building, where the openings appear to *gradually* decrease as they recede from the eye, than the architect's elevation where they are all the same size, he will see how important this principle is, and how universal in its application. Notice next that the two sides of the leaf are *symmetrical;* the same curve is repeated on both sides, reversed in direction. So that the value and effect of every part of the

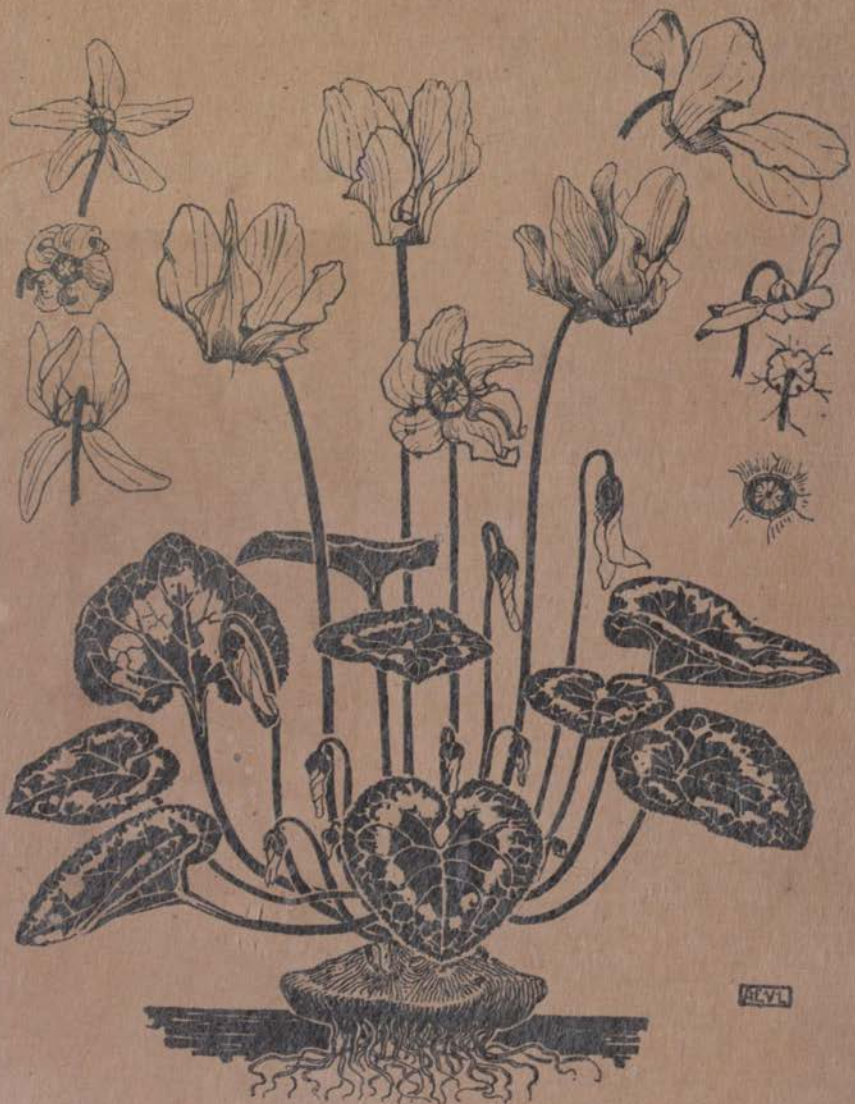

FIG. 10.—Cyclamen. Flowers white and crimson. Height 10 inches.

curve is doubled by being contrasted with the corresponding part on the other side. The human figure, a Greek vase, nearly all beautiful things are symmetrical, and symmetry will give completeness and decorative value even to the least ornamental forms. Symmetry, too, is a very striking case of the universal device of *contrast*. Every one knows how the effect of forms and colours is enhanced by being placed side by side with widely differing forms and colours—as the purple cloud against the orange sky.

FIG. 11.—Musk Mallow. Leaves 2 inches across; flowers white, pink or purple.

The first thing we notice about the surface decoration of the leaf is that it consists of a number of spots *evenly* (not equally) *distributed* over it. But looking at them more closely we shall see that the main spots are all pretty much alike in shape. If they were not, each spot would require special attention in order to make it out, which no one would think it worth while to give. And so the thing would become uninteresting because it would be so unwarrantably hard to understand. This *repetition* of parts gives an appearance of restfulness and unity to a composition (as do the columns of a temple); but it may be carried to excess and create monotony. In our leaf this danger is avoided by making all the spots rather different in size. And yet this *variety* is not introduced in any hap-hazard way; if it were, the design would again become uninteresting because of its confusion. Very much of a designer's art consists in so balancing his work that it never bores us either because of its monotony, or because of its confusion. In the leaf the spots *gradually* become smaller from the base to the point, and so form an ornamental pattern—an example of forms not in themselves

FIG. 12.—Prickly Sow Thistle. Thirty inches high. Yellow flowers.

beautiful becoming ornament by being thoughtfully arranged in obedience to the principles of repetition, variety, and gradation.

The veins of the leaf give an example of *radiation*, another invaluable device for giving to a design unity and clearness without losing the interest of variety. To see how many beautiful things are designed on radiating lines, we have only

FIG. 13.—Lily of the Valley. Flowers white. Running root-stock.

to think of flowers, wings, shells, drapery, and so on. Notice too how the ends of the veins are curved round into the outline. This beautiful flow of one line into another is called *composition of line*, and is of the utmost value in design, lying at the very root of the beauty of scrolls, and indeed all compositions of curved lines.

FIG. 14.—Fuchsia. Flowers crimson, purple, white, and red.

So much for the principles to which ornament of every kind must conform. Now we must say a few words about the ornamental treatment of natural forms in particular.

A mere naturalistic copy of a plant on to an industrial object will not in itself form ornament. It will neither be interesting because of its fitness for its purpose (think of a spray of a plant used as a gas bracket, the stem turned into a gas pipe, the stamens into burners), nor will it be interesting as an expression of human thought and invention. In order to become ornament, natural forms must be arranged in some orderly pattern; they must be simplified so that their meaning may be easily grasped; their decorative qualities must be expressed in the material in question in the most direct and effective way. The technical word is *conventionalised*.

Before a designer uses a plant as ornament he will study most minutely its flowers and fruit, leaves and leaf junctions, even its roots, and then *select* and *emphasise*, perhaps exaggerate those features most suitable for his purpose. Yes, even exaggerate, for it is not necessary that a designer should have Nature's authority for every form he uses. The point is that there should never be less vigour, less fancy and individuality about his ornamental forms than there was in the natural forms which suggested them.

It always gives an added interest to a design when we can trace the natural form from which the designer started. But even this interest may be lost and yet the ornament may be good. It is difficult to say, for instance, what plant the Early English carved foliage most resembles.

The extent to which the conventionalising process is carried must be largely a question of individual taste; some people will prefer to see more of the artist's individuality, some more of the familiar charm of Nature. But beyond that the following considerations will be found important:—

(1) The ornament on important structural feaures must be severe and conventional. The ornament in a spandrel or a panel should be much more naturalistic and picture-like than that on the piers and styles which carry them.

FIG. 15.—Blackthorn

(2) The more stubborn and difficult the material and process in which a design is carried out, the more simple and conventional should be the ornament.

(3) There is something impossible and exasperating about the appearance of a vast number of literal copies of a plant over a space, all showing exactly the same accidents of growth and

FIG. 16.—Pansy and Viola. 1. White; 2. crimson; 3. purple; 4. crimson and yellow. Height 6 inches.

colour. So that we think the ornament should be more or less frankly conventional and non-natural in proportion as the repeat of the design is more or less frequent and obvious.

In conventionalising natural forms one must be very careful to do it consistently. In a naturalistic treatment of a plant, for

FIG. 17.—Crown Imperial. Flowers yellow or red. Height 3 feet.

FIG. 18.—Martigon Lily. Flowers purple. Height 30 inches.

instance, no liberties may be taken with its *growth* (Fig. 110). When the stems are twisted in an arbitrary way, and the leaves made rigidly symmetrical in one part of a design, a naturalistic drawing of a flower must not be introduced in another. In fact, it must then be made quite obvious that the thing is intended for ornament and not for a representation of a plant (Fig. 131).

Fig. 19.—Strawberry. Running growth. Flowers white; leaves 6 inches across.

FIG. 20.—Perennial Sunflower. Flowers yellow; 5 inches across.

FIG. 21.—Giant Thistle. Light blue-green leaves. Flowers purple. Height 8 feet.

FIG. 22.—Panel designed on the Blackthorn.

CHAPTER II

SPACE FILLING

THE first exercise in practical design a student will undertake is the simple filling of spaces with natural forms, arranged in obedience to the principles stated in the last chapter.

The two things to be considered are, first, and most important, the masses: and, second, the lines connecting them. And to begin with, the masses must be *evenly distributed* over the space, neither all in one corner, nor on the other hand spotted about equally all over. It is well to arrange the principal mass rather above the middle of the panel, because this is the place one looks at first and it will appear empty if it is not made especially interesting. The secondary masses will reach towards the corners, another place where emptiness must be avoided. Then again the masses must be *symmetrical*; if the two sides are not exactly alike they must at any rate be well *balanced* (Figs. 73 and 149). In fact all the principles of repetition, contrast, variety, &c., will more or less consciously come into play.

FIG. 23.—Buttercup. Golden flower. Fifteen inches high; growth running or upright.
FIG. 24.—Meadow Vetchling. Golden flower; leaves 2 inch across.

In the same way, in order to secure harmony between the connecting *lines* and the outline of the space, several of the principal ones must *repeat* (*i.e.* be parallel to) the outline. Or where this is not possible, as in Fig 149, the same end may be attained by a subsidiary border line, broken into by parts of the pattern. The lines must also harmonise with one another, they must obey some common law. *Radiation* is invaluable here; the lines may either radiate from one point (Fig. 33), or from two (Fig. 34) or more, or from a horizontal line (Fig. 31), or radiate tangentially from a spiral or circular line (Fig. 36).

FIG. 25.—Design for a cloth book-cover.

Lastly, they must *compose* with each other. Nothing perhaps is more useful for tying a design together and giving it unity than composition of line. Lines should flow gently into, or be cunningly arranged in continuation of, one another, as the line of the shoulder is continued by the chin round the opposite cheek. They should form pathways along which the eye may wander till it rests contentedly on the more interesting points.

When one line crosses another it should cross at right angles. If it crosses obliquely the eye will be led off from one to the other to the utter confusion of both; besides, the resulting square-

ness gives a useful contrast to the curved lines, steadying them and preventing an unpleasant whirling look that designers are often troubled with.

With the same object of steadying and strengthening a composition it is always well to introduce some straight lines

FIGS. 26 to 29.—Designs for card-backs, on the Poppy, Tulip, Dandelion, and Cyclamen.

among the curved ones; especially in designs not themselves bounded by straight lines (Fig. 35).

We may call the students' attention here to some of the more common designers' devices and methods of treating the background. The use of a dark outline for defining forms is

FIG. 30.—Scotch Thistle. Height up to 4 feet. Lower leaves sometimes 18 inches long. Flowers purple.

well known. Figs. 35 and 64 are examples of a useful way of enriching and softening forms by drawing a white line round them. The same effect may be obtained by an outline intermediate in tone between the pattern and the ground or, in the

FIG. 31.—Panel ornamented with Daffodil.

case of a light background, by a double outline. Figs. 38 and 164 show a similar plan of filling in the background with concentric lines. In Fig. 29 the background is enriched by spots, and in Fig. 35 by lines. Backgrounds may be enriched

FIG. 32.—Panel designed on the Tulip.

by means of an *undergrowth* consisting of a plant of a smaller scale than that forming the chief pattern (Figs. 124 and 126), or water plants may be backed with a conventional representation of water (Figs. 102, 149, 180). Or again the smaller

FIG. 33.—Daffodil. Height 12 inches. Yellow petals, orange trumpet.

details of a plant may be massed together over the background as the tendrils in Fig. 129.

A pattern may be made more effective by varying the tone of background in a quite arbitrary manner as in Figs. 34 and 90, or lastly the colours of the pattern and ground may be systemati-

Fig. 34.—Panel based on Strawberry.

Fig. 35.—Circle ornamented with Daffodil.

cally *interchanged*, as in Fig. 66. This figure, by the way, illustrates very strikingly the greater richness of light on dark compared with dark on light. Notice how small the details look in the black on white part, although these are actually drawn larger than the others to allow for the spreading of light on the retina of the eye.

Fig. 36.—Spandrel ornamented with Thistle.

FIG. 37.—Hawthorn-blossom. White to pink.

FIG. 38.—Border designed on Tulip.

CHAPTER III

BORDERS

A BORDER often forms a complete scheme of decoration in itself. The ornament on the book cover (Fig. 91), the plates (Figs. 49 and 53), and the title page of this book consists of borders only. In the embroidered table centre again (Fig. 90)

FIG. 39.—Border based on Hawthorn.

it may be best not to hide a beautiful material with ornament, and a border may give sufficient interest. When a border is used round other ornament it must serve the purpose that a picture frame serves—contrast and add *value* and compactness to the filling; so that if this filling is severe the border may be interesting and important; if on the other hand the filling is

FIG. 40.—Border based on Chrysanthemum.

elaborate, then the border must be simple and severe (Figs. 112 and 116). To help in keeping the border distinct from the filling a subsidiary border of bands and lines is often used (Fig. 112). Sometimes this inner border is broken into by the filling, as in Figs. 22 and 148 (where the architectural mouldings would form the

FIG. 41.—Hawthorn Stipules.

main border), and sometimes by the main border itself, as in Fig. 40. These bands and lines, both inside and outside the

FIG. 42.—Chrysanthemums. Colours white, crimson, and yellow.

FIG. 43.—Border designed on Thorn-apple.

borders, are very valuable, too, for tying the masses of ornament together (Fig. 90), and require very careful arranging.

The border and filling, although distinct, must nevertheless appear to belong to the same scheme of decoration; and to give this unity of effect it is well to com-

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FIG. 44.—Thorn-apple. Flowers white, 4 inches long.

pose the border of the same natural forms as the filling but differently treated (Figs. 112, 116, 160).

In rectangular repeating borders the corner is the chief difficulty, and must be considered first. It will be found that

FIG. 45.—Seaweeds. A, Sea Tongs, olive green. B, Narrow Ulva, green colour. C, Serrated Wrack, olive green. D, Horn Wrack, olive green. E, Twin-bladder Wrack, olive green. F, Knotted Wrack, olive colour. G, Oar-weed, olive green.

FIG. 46.—Seaweeds. A, Sea-Oak, olive green. B, Gulf-weed, olive. C, Irish Moss, brown, purple, yellow, or green. D, Rhodymenia, crimson. E, Peacock's Tail, green.

FIG. 47.—Seaweed border.

the only sort of border which will run round the corner without alteration is one whose leading feature is a doubly symmetrical boss placed in the *middle* of the border (Fig. 100). A border on the lines of alternating right-angled triangles will fit into the corner very well by leaving out one of the triangles (Fig. 43). A border based on a rhombus of 45° would also fit in all right, but the direction of the growth would have to be changed at each corner and in the middle of the panel. If the border is chiefly composed of vertical elements like Fig. 90, one of these may be arranged diagonally at the corner without much altera-

FIG. 48.—Border based on Cyclamen.

FIG. 49.—Border based on Convolvulus.

tion. Another plan is to arrange the ornament so that it will dove-tail together at the corner (Fig. 47), or overlap the corner as Fig. 77. Or lastly the corner may be specially designed, as in Fig. 40. Whichever plan is adopted it should be remembered

FIG. 50.—Convolvulus. Flowers white to pink, 2 inches across
FIG. 51.—Bryony. Flowers green, berries red.

that the corner is structurally the weakest part of a frame, and the ornament should appear to strengthen it and bind it together, and so must be heaviest and richest there.

FIG. 52.—Canary Creeper. Flowers yellow, 1½ inches long.

We give an example (Fig. 54) of a border applied to a cup for the purpose of illustrating how the pattern may be projected on to a curved surface. It will be seen that there are a number

FIG. 53.—Canary Creeper border.

of vertical lines drawn over the pattern corresponding to equal divisions drawn on the plan of the curved form (1, 2, 3, 4, 5); these are crossed by a convenient number of horizontal lines

FIG. 54.—Border based on the Strawberry.

(A, B, C, D, E). The vertical lines are projected from the plan on to the elevation, the cross lines put in, and the design drawn freehand in each of the foreshortened spaces.

FIG. 55.—Vegetable Marrow. Leaves 9 inches across; flowers yellow.

Fig. 56.—Bartonia Aurea. Golden flowers. Height 15 inches, upright or running.

CHAPTER IV

ALL-OVER PATTERNS

The simplest form of all-over patterns is the diaper (Fig. 64). Here the ground is divided up into squares, circles, hexagons, or other figures, and each figure is filled tightly with a pattern,

Fig. 57.—Spot and powder pattern based on Bartonia.

FIG. 58.—Campanula, white and blue. Height 30 inches.
FIG. 59.—Astrantia. Horny petals, green outside, pink inside. Height 24 inches.
FIG. 60.—Cornflower. Floret white, purple, or blue. Height 24 inches.

FIG. 61.—Sprig pattern. Horned Poppy and Goose Grass.

either complete in itself or growing out of the adjoining figure (Fig. 66). If only one figure is filled up at intervals, a "spot"

FIG. 62.—Goose Grass. Running growth; leaf whorls 2 inches across.

pattern is formed; if the dividing lines are omitted and the ground covered with a powdering of a small or simple device,

we have a "spot and powder" pattern (Fig. 57); and when the spot takes the form of spray of foliage, the design is called a "sprig" pattern (Fig. 61). Fig. 66 is an intermediate form of pattern between a diaper and what Mr. Jackson calls a *free*

Fig. 63.—Horned Poppy. Flowers yellow.

all-over; that is, one in which the ornament grows freely over the ground and the repeat is not noticeable.

An all-over pattern may either repeat side to side, as in Fig. 64, or it may be "dropped" and the adjoining repeat placed half its depth lower down than its neighbour (Figs. 114, 119, 121, 124, &c.). When flowers or other striking features are repeated over a

large surface, their repetition is likely to develop unforeseen lines across the pattern, and the dropping of the repeat largely prevents this.

Fig. 164 shows how a free all-over may be schemed as a drop pattern. A diamond is drawn the full width and the full height

FIG. 64.—Diaper based on the Daffodil.

of the repeat, and the ornament planned so that the top right hand of the diamond fits accurately on to the bottom left hand, and the top left on to the bottom right-hand side.

The accuracy of the repeat in free all-over patterns may be

FIG. 65.—Fungi. From Sowerby's models in British Museum.

secured either by tracing one repeat and fitting it on to all four sides of the design, or by the well-known device of cutting the design into four and fitting the right-hand edge to the left and the top to the bottom.

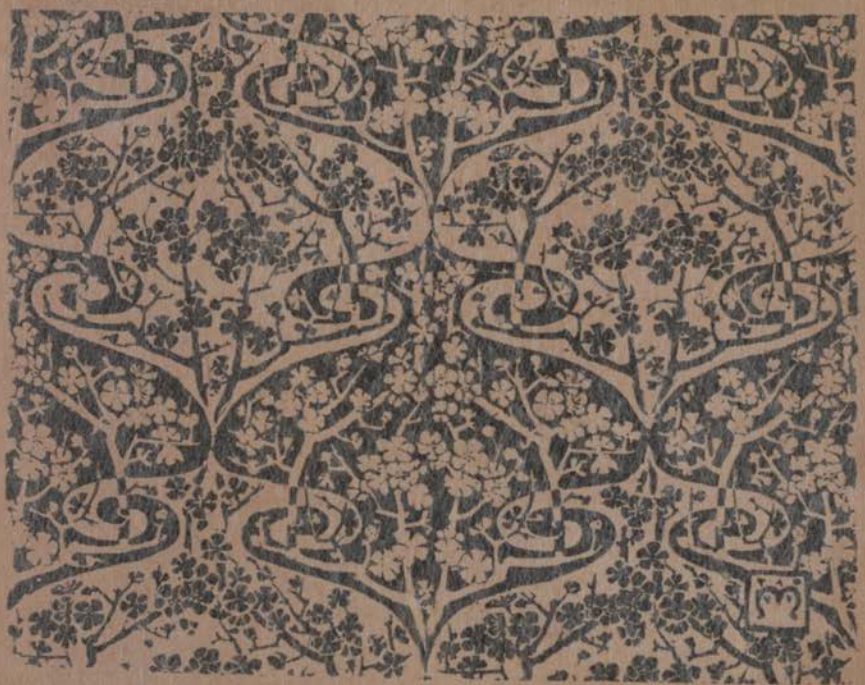

FIG. 66.—Interchange pattern founded on Blackthorn.

FIG. 67.—Parrot Tulip. Flowers very large, all shades of yellow and red.

FIG. 68.—Sturt Pea. Grotesque vermilion flowers, 3 inches long, with purple petals in centre. Climbing growth.

CHAPTER V

GESSO

GESSO work may be described as *modelling with a brush* whilst the material is in a liquid state. There are several ways of preparing the gesso. For small work that known as gesso duro is perhaps the best. It is made of whiting soaked in water, glue, and boiled linseed oil, with the addition of a little resin. Another recipe is: plaster of Paris and size with a little glycerine; this has to be used very quickly, as it soon dries. Both these are kept in a liquid state by standing the vessel in hot water. Alabastine is a most useful ready-made form of gesso, which requires only to be mixed with cold water and sets slowly. It is also sold in various colours. Denoline, a similar preparation, is recommended by Mr. Walter Crane.

FIG. 69.—Narcissi. A white flower, cream-coloured centre; B white, yellow centre with crimson margin; C yellow, orange centre; D yellow. Height from 8 to 18 inches.

In beginning, if the ground is of a porous nature, as wood or plaster, it must be first coated with lacquer or varnish. The design is drawn or traced upon it, and then it is laid in a horizontal position to receive the gesso. This is mixed into the consistency of cream, and is applied with a long sable brush, known as a rigger, which should always be well charged and held perpendicularly, and the liquid gesso floated on to the design. Relief is obtained

Fig. 70.—Bluebell. Height 8 inches. Flowers white or blue.

Fig. 71.—Gesso panel (Jonquil).

by going over the same pattern repeatedly as soon as the coat underneath is fairly tacky. This is the proper way to work gesso for it should ultimately appear quite textureless; and if the mixture is too stiff brush marks and other unevennesses will result. When the ornament is in higher relief like Fig. 73, the gesso must be mixed stiffer, and cotton wool or tow, pulled out into small pieces, must be added to strengthen the mass. Before it sets gesso can be modelled with the fingers, or with the modelling tool kept well oiled, and when dry may be scraped down and carved with a knife—but this departs from the character of gesso work, which should be kept as simple and direct as possible.

Before colouring gesso work one should be quite sure that the colour is an improve-

FIG. 52.—Tulips. A, B, C, the same crimson flower; D, E, F, yellow; G, K, crimson; H white.

ment—it is often best without. A good plan is to repeatedly coat the work with white bees' wax dissolved in turpentine, or brown or white shellac dissolved in methylated spirits or naphtha; or, again, with linseed oil. Any of these methods

FIG. 73.—Gesso panel based on Parrot Tulip.

will slightly colour the gesso, and also tend to harden the surface. If the waxed method is properly done, and a hot iron held a little distance from it to drive the preparation into the plaster, the surface will bear polishing, when dry, with a silk

FIG. 74.—Autumn Anemone. Height 30 inches. Flowers white with yellow stamens.

rag. The wax may be coloured by mixing with it powdered colours, but, if a flat tone is desired, tempera colours may be painted on, or watercolour applied with a spray diffuser. If oil-colour is used it should be very thinly laid on, or rather flooded on, with varnish or turpentine, the work being first waxed as above to prevent absorption. A good effect is obtained by

FIG. 75.—White Pink. Height 9 inches.

FIG. 76.—Garden Anemone. Flowers crimson. Height 8 inches.

wiping off the colour in the raised parts with a rag, leaving the darker colours in the hollows. It may be mentioned that a fair amount of dry colour may be mixed with the gesso without injuring its setting properties.

Gesso work may be partly or wholly covered with gold or other metal leaf, with one or more coatings of hard drying

FIG. 77.—Design for frame moulding based on Teasel.

FIG. 78.—Design for lock plate based on the Lily.

varnish to preserve it. Oilcolour may be used transparently over these metals. Work begun in tempera may be finished in

FIG. 79.—Ox-eye Daisy. Height 2 feet. Flowers white, yellow centres.

oil. We may add that it is never desirable to sacrifice the white of the material to white paint.

The teasel design (Fig. 77) is intended to be in low relief in the hollow moulding of a frame. The lock-plate (Fig. 78) is for

low relief on well-seasoned wood or tough mill-board covered with a thin layer of gesso, and should be either treated with wax or the leaf-metals lacquered.

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FIG. 80.—Wood Anemone. Height 8 inches. Flowers white.

FIG. 81.—Apples.

FIG. 82.—Acanthus. Height 18 inches. Green and brown flowers.

FIG. 83.—Crocus. Flowers 6 inches high—yellow, purple, and white.

CHAPTER VI

EMBROIDERY

EMBROIDERY may be defined as the enriching and setting off of beautiful material by means of needlework. The embroideress should consider how this definition affects her design. She will understand why she instinctively places always a richer material on a poorer, never a poorer on a richer. So that, while silk may be placed on linen[1] or canvas, wool on linen, or even silk on silk and linen on linen, she must never place linen or wool threads on silk.

[1] Langdale hand-made linen is specially recommended for embroidery by Mrs. May Morris Sparling.

FIG. 84.—Branched Burr Reed.
FIG. 85.—Feather Grass.
FIG. 86.—White Darnel.
FIG. 87.—Sea Couch Grass.
FIG. 88.—Paper Reed.
FIG. 89.—Cotton Grass.
(from Gerarde's Herbal).

FIG. 90.—Border for table centre in appliqué embroidery. Suggested by Love-in-the-Mist.

She will see, too, that in order to make the most of her rich material, it is best to adopt light, open patterns, and use solid filling in stitches as sparingly as possible. This last however

FIG. 91.—Embroidered book-cover based on Crocus.

must not be taken as a hard and fast rule. In a very effective kind of work, for instance, called "outlining and darning," the background is entirely covered with close stitches and the pattern left plain.

FIG. 92.—Love-in-the-Mist. Petals of flowers 5 to 20, white to blue. Height 18 inches.

FIG. 93.—Embroidered book-cover based on Jonquil.

The essential qualities of all good needlework, says Mrs. Sparling, "are a broad surface, bold lines and pure, brilliant and as a rule simple colouring." There are other considerations too, which, important as they are in all sorts of ornament, are more than ever important in embroidery. For instance—never forget the conditions under which the work is to be seen; do not squander fine and delicate work on a wall hanging or a banner, you will only make it niggling and ineffective. For that kind of work consider chiefly, and emphasise well, the vital lines and masses of the design, and reserve minute and dainty workmanship for tablecloths, doyleys, and objects near the eye.

Again it is always well in decoration to keep the elements of the design distinct and separate, and to avoid, as much as possible, the appearance of one object

FIG. 94.—Jonquil. Eighteen inches high. Flowers cream-coloured with yellow centres.

FIG. 95.—Gladiolus Colvillii. Purple, white, or pink. Height 24 inches.

FIG. 96.—Snapdragon. Flowers white to deep crimson. Height 2 feet.

FIG. 97.—Scarborough Lily. Orange flowers on flat stem.

FIG. 98.—Jessamine. Flowers white; leaves 5 inches long.

being behind another; but in embroidery where there are no sharp edges, and where the needle must be rethreaded for each colour, overlapping should be especially avoided. Fig. 91 errs on the wrong side in this respect.

Fig. 99.—Embroidered border of hanging (Scarborough Lily).

Let the colours of the thread be as brilliant as possible. Colours are glaring, not because they are bright, but because they are inharmonious. Good taste in colour can only be acquired by the (conscious or unconscious) study of Nature. One hint may be given—keep on the blue, green, and crimson side of the scale, and avoid the *abundant* use of orange and light red. A valuable device for correcting a want of harmony between two adjoining masses of colour is an outline of a contrasting colour round both.

If possible obtain threads dyed with kermes, cochineal, indigo, and other organic dyes. Avoid *aniline* dyes, because they fade and also because their colours are vicious. The threads sold by the School of Embroidery at Leek are strongly recommended.

Fig. 100.—Border for embroidery based on Water Lily.

Much of the charm of embroidery depends on the fancifulness and ingenuity of the stitches employed. We give a few of these, but the number that can be invented by the embroideress is almost infinite.

FIG. 101.—Spanish Iris. Blue, yellow, and white. Height 30 inches.

The methods of working the *crewel* or *stem* stitch, Fig. 103A, the *chain* stich, C; the *satin* stitch, E; *feather* stitch, F; *padded* stitch, G; *darning*, H; *brick* stitch, I; *double feather* stitch, J; and the *filling-in* stitches, K and L, are clear from the drawing. In *couching*, B, a strand of threads is laid on the work and secured to it by cross stitches, which are sometimes arranged as a diaper. The *French knots*, D, are formed by bringing the needle up through

Fig. 103.

the work at the point where the knot is required, twisting it several times round thread and passing it through again where it came out. The *split* stitch, M, formed by bringing the needle up *through* the preceding stitch, forms a clearer outline than the crewel stitch.

Fig. 102.—Embroidered portière based on Iris.

The best sort of woolwork is worked on a large scale with bold, striking, outlined curves filled in with a variety of fanciful stitches (Figs. 99 and 102).

FIG. 104.—Nasturtium. Flowers yellow to crimson.

A very important variety of embroidery is known as *appliqué*. Here some of the masses of the design are embroidered

Fig. 105.—Tropæolum Claratum. Flowers orange. Climbing growth.

on some stout material (or a stuff backed with a stout material) with gold or silk threads. These are then cut out and secured

Fig. 106.—Embroidered Doyley (Nasturtium).

to the silk or other ground by threads of the same kind, or by an edging cord. The design may be connected by lines of ornament worked on the ground (Fig. 90).

FIG. 107.—Horse Chestnut.
FIG. 108.—Japanese Honeysuckle. Flowers crimson with orange stamens.

FIG. 109.—English Oak, Holly, Oak apples, Hazel, Maple, Turkey Oak.

CHAPTER VII

TEXTILES

TEXTILES are composed of two sets of yarns crossing at right angles; the longitudinal ones are called the warp, and those thrown into the warp, by means of the shuttles, are called the weft. It is evident that, for the shuttle to get between the stationary warp, some of the yarns must be raised, and this is brought about in figured work by an invention known as the Jacquard loom. This is controlled by a set of perforated cards, the perforations being disposed according to the pattern. The

FIG. 110.—Tapestry hanging based on Honeysuckle. 27 inches across.

pierced card comes in front of a series of pins. Some of these pass through the holes in the card and liberate a number of lines,

FIG. 111.—Honeysuckle. Flowers crimson outside, yellow inside.

each of which is connected with a particular warp. The lines, draw up their warps, the others remain horizontal and the shuttle passes between them.

FIG. 112.—Madras muslin (Christmas Rose). Repeat 18 by 9 inches.

The weft is usually composed of richer and costlier material than the warp, and is used to form the most prominent part of

FIG. 113.—Christmas Rose. Flowers white, 2 to 3 inches across.

the pattern. A different shuttle of course is used for each colour (sometimes as many as six at a time, though two or three are more common) but by "planting" the flowers and various coloured details in alternating horizontal rows (Fig. 112) more colours may be used without increasing the number of shuttles used at the same time, and so without increasing the cost. These

FIG. 114.—Chenille hanging based on Sunflower. 36 inches wide.

rows of colours may be so cunningly interwoven with a common ground colour that no unpleasant effect will be noticed. In materials used for hangings, however, horizontal lines are not objectionable; in fact horizontal, oblique, and large curved lines look well running round the folds and bringing out their form, only predominant vertical lines, which would confuse the forms

FIG. 115.—Sunflower. Petals yellow, centre yellow to brown. Height 6 feet.

of the folds, should be avoided. It should not be forgotten, by the way, that in an open textured material (which is really a minute chequer of warp and weft) lines which are only slightly curved and are nearly vertical or horizontal are liable to come out quite straight owing to the step-like formation of the stitches.

In designing for woven fabrics adopt simple, clear-cut masses

FIG. 126.—Damask table cloth (Sunflower). Repeat of filling 27 by 18 inches. Border repeat 9 inches.

of tone and colour, with what Mr. William Morris calls "Gothic crispness of detail," avoid shading, and rely, for richness and variety of colour, on the play of light and shade on the texture and folds of the material.

The width of most woven materials is a number of quarter-yards, so that the designer will be safe in making his repeat a multiple of 9 in. in width. Silk must have a divisor of 63 in. for the width of repeat. The length of the woven repeat is

limited only by cost of card cutting, &c. When a border is woven with the fabric, one must be very careful to make its

FIG. 117.—Japanese Rose. White and pink, scarlet fruit.

repeat equal to, or a divisor of, that of the filling. (Figs. 112 and 116).

The varieties of woven fabrics are almost endless, the following are among the most important :—

FIG. 118.—Horse Chestnut. Flowers white or pink. Fruit 2½ inches across.

FIG. 119.—Silk brocade based on Canary Creeper.

FIG. 130.—Wild Rose. Flowers white and pink, yellow stamens. Hips scarlet.

Damask. In linen material the tones are obtained merely by the play of light on the weft, which forms the pattern, and shade on the warp, which forms the ground (Fig. 116). In damask curtains and silk damasks, the pattern is more closely woven than the ground, which has a satin look. The pattern, being less rich in effect than the ground, should be small.

Brocatelle and *Silk Brocade* (Fig. 119) have on the other hand

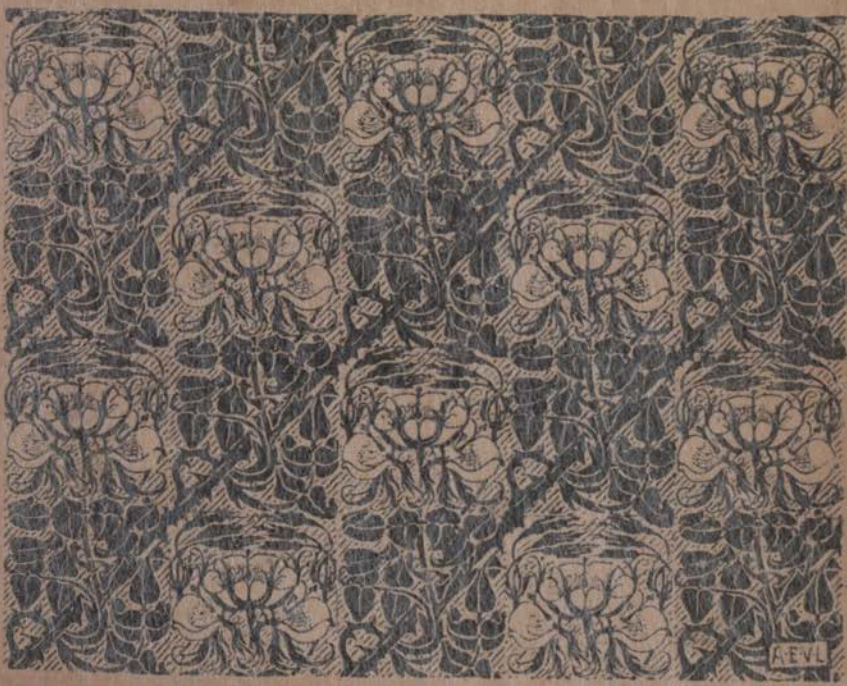

FIG. 121.—Cretonne based on Wild Rose.

the pattern raised or puffed as in embroidered satin stitch, and this should be made the most of.

Real *Tapestry* is a fabric worked by hand into the tightly stretched warp, differing from embroidery in being worked into the material, instead of upon the finished web; but the term tapestry is commonly applied to a material used for hangings and furniture coverings, and made of cotton, or wool, or both, and

FIG. 122.—Indian Corn (from Gerardés Herbal). Height 5 feet.

sometimes mixed with silk (Fig. 110). In the cheaper sorts coloured warps are used, and take an important part in forming the pattern.

FIG. 123.—Snowdrop. Flowers white with green markings. Height 6 inches.

Madras muslin (Fig. 112) is woven with a ground of a fine open web into which one or more shuttles bearing yarns of coarser material are introduced. Where it is not required in the pattern this coarser yarn floats free, and is afterwards sheared off. For the narrow folds of this light and flexible material small and broken

up patterns with plenty of open-work ground are evidently best.

Chenille (Fig. 114) is a fabric composed of heavy cut pile. In this material the pattern is already printed upon the wood threads before they are woven into the cotton warp. The colours here may be unlimited; massive simple patterns are those most suitable.

Most fabrics—as silks, cretonnes, muslins, floorcloths—may be ornamented by printing in coloured dyes, either from blocks,

Fig. 124.—Cretonne (Passion Flower and Goose Grass).

which are used for the better materials and give the softer and richer effect, or from copper rollers, which are used for the cheaper sorts of textiles. A system of printing on jute from india-rubber rollers, which has artistic possibilities, has lately been invented by Mr. Webb, of Manchester. Our remarks on the design of woven patterns apply pretty much to printed ones, except that one is here allowed more variety of broken colour and finer detail, owing to the facilities for hatching, dotting, overlapping the transparent dyes, &c.

FIG. 125.—Passion Flower. Flowers white and blue, 4 inches across.

Especially is this the case in fabrics printed by machinery from metal rollers on which the pattern is engraved. Here by the free use of stippling and shade lines of varying strength, and by the use of two or more rollers carrying the same colour, but differently engraved, the most elaborate gradations of shading and realism of detail may be obtained. In fabrics printed from blocks, fine lines engraved in wood would soon wear out or swell up unevenly on the application of the wet

FIG. 126.—Cretonne (Poppy Leaves and Grass) (30 inches wide).

colour, but even here considerable fineness of detail is possible by the use of brass wire and pins as described in the chapter on wall papers (Chapter IX.).

But although elaborately naturalistic details are possible (and also most popular) in printed fabrics, they cannot be defended, either on the ground of economy or of good taste.

A manufacturer will print a design from one set of blocks in a large number of different schemes of colour, and it is

FIG. 127.—Blackberry.

evident that for this purpose the details cannot be too simple and conventional. Moreover, as explained in the first chapter, naturalistic forms mechanically repeated over a space can never make good ornament.

Every tone and colour is, of course, printed from a separate block or roller. To make these, tracings of each piece of colour have to be taken from the designer's drawing, and to

FIG. 128.—Cretonne based on Blackberry (30 inches wide).

prevent disappointment it is advisable to assist the tracer by leaving a definite edge to each bit of colour in the design.

The colours used for printed fabrics (except floorcloths) are transparent, so that an increased number of shades may be got by superimposing one colour on another; but the chemical action of the dyes on each other is such that superposition is best avoided, except in unimportant details, by all but experienced men.

FIG. 129.—Design for printed Cotton based on the Pea (diamond repeat, 30 × 21 inches).

FIG. 130.—Garden Pea. Five Petals (1 large standard over 2 alæ, enclosing 2 smaller petals), white to pink. Everlasting Pea. Five to 10 flowers on a stalk, white or red.

Cretonne cloth is 30 in. wide, and the repeat for block printing must not be more than 21 to 24 in. long; the roller-printed repeat may be 15 to 34 in. long.

FIG. 131.—Printed Muslin suggested by Honeysuckle (30 inches wide).

FIG. 132.—German Iris. Flowers white or blue. Height 24 inches.

FIG. 133.—Stencil Frieze, Iris pattern.

CHAPTER VIII

STENCILLING

A STENCIL plate is well known as a perforated piece of card or paper, the perforations forming either the pattern or the background. It is not, however, until one has studied the productions of the Japanese—those masters of this as well as many other arts—that its scope is realised. An examination of their work shows the possibility of getting the most delicate patterns as well as the broad effects necessary for wall decoration. Some of their most intricate productions, however, through necessary cutting away, are so fragile that not enough paper remains to hold them together; they are therefore made in two sheets cut out together, and fastened between them is a layer of hair or silk threads, which do not show in the painted impressions.

The best kind of cartridge paper is good to make the plate of, though we ourselves prefer thin Bristol board, that known as "two sheet." It is tougher, and a cleaner edge is obtained. The

FIG. 134.—Wild Iris. Three feet high. Flowers yellow. German Iris. Flowers pale yellow. Height 30 inches.

oiled paper used for copying presses is still better and does not require sizing. The pattern drawn upon this is cut out on glass with a sharp knife having a square point. The Japanese manner is to

FIG. 135.—Purple Iris. Eighteen inches high. Scarlet berries.

push the knife forward as the engraver uses the burin. Small regular spaces are punched in with small punches, which are easily made out of small metal tubes. The least desirable material to use is the metal. The accidental bending up of the more delicate

FIG. 136.—Apple. Flowers pink and white.

FIG. 137.—Pear. Flowers white.

parts can rarely be successfully straightened out again. When finished and before using, the Bristol board plate must be sized on both sides with a spirit varnish; that known to druggists as "knotting" is the best.

FIG. 138.—Crab Apple. Flowers white to pink.

In designing a stencil plate its limitations must be recognised from the first. An important requirement is that the whole must be held together by a series of *ties*. These must not be in the form of crude or unsightly breaks, but should form part of the design, and must be provided for from the commencement. They

should not be painted over on the impressions; that would only tend to make the pattern look like a rather wooden piece of hand-painted decoration. The ties should be accepted as a necessary condition of the craft (like the lead lines in a stained glass window), and the difficulties of their arrangement faced and

Fig. 139.—Diaper pattern based on the Crab Apple, suitable for wall decoration.

overcome. It is just this sense of difficulties overcome by human thought and invention that adds tenfold to the charm and interest of all the applied arts, and it is just the absence of this that makes the vast mass of modern machine-made, cheap decoration so vulgar and uninteresting. The stencil ties should be used to form the drawing of the design, to outline the petals of the flowers (Fig. 141), or form the veins of the leaves, or be

arranged in a pattern over the background (Fig. 149). When the stems are too long to hold together without a tie in their length, advantage may be taken of the leaf junctions (Fig. 148), or the wrinkles in the wood (Fig. 139), or the twist in the growth

Fig. 140.—Marsh Marigold. Flowers golden yellow. Upright or running growth. Height 12 inches.

which is such a characteristic feature of some plants such as the vine or the vegetable marrow.

The brushes required for use are round stumpy ones of soft hog-hair, and the colour is applied by dabbing. If it is a hard even surface that is to be ornamented the same colours used for the ground must be used, oil or tempera as the case may be;

FIG. 141.—Design for diaper based on the Marsh Marigold.

and practice alone will teach the consistency of the colour, and the exact amount with which to charge the brush so that it will not spread underneath the plate and blur the pattern.

Besides wall decorating, stencil patterns may be used for the enrichment of all kinds of fabrics, from common sackcloth to fine silk. Dyes are used for this purpose. Messrs. Lechertier, Barbe, and Co. of Regent Street, make a permanent dye, known as

FIG. 142.—Wild Arum. Twelve inches high. Purple flower spike enclosed in green spathe. Berries bright scarlet.

tapestry colour, that does excellently for this work. For use on coarse material, as canvas or the arras cloths, which are not likely to require washing, oil-colour which has had the greater part of the oil removed on blotting paper, and has been afterwards thinned down with turpentine, does very well. It is soon evident when stencilling on cloth how much colour or dye—which

is used very thin—may be used in the brush without spreading under the plate.

The Japanese, who use nearly all their stencil patterns to decorate textiles, have another way of using their plates. The pattern is stencilled on with a "resist"—a substance composed mainly of starch paste. This protects the material from the action of the dye, and when the stuff has been dipped in the dye this

Fig. 143.—Stencilled design for cloth book cover based on the Wild Arum.

"resist" is washed away, and the pattern remains in the original colour of the fabric.

Stencil plates are sometimes used in pairs, or more; one forming perhaps the background and the other printed on the top in another colour; but with a bold pattern several colours may be used on one plate.

One of the most delightful features of stencil decoration is the ease with which beautiful effects of broken and varied colour may

FIG. 144.—Arum Lily.

be obtained from one plate. The colours used in two adjoining repeats may be alternated, or a gradation of colour may be arranged between one part of the work and another. The colouring of Fig. 149, for instance, might range from rich dark tones at the bottom, to lighter shades at the top; and a variety of shades might be introduced in the flowers in Fig. 141. The superiority of wall hangings stencilled by hand with tender

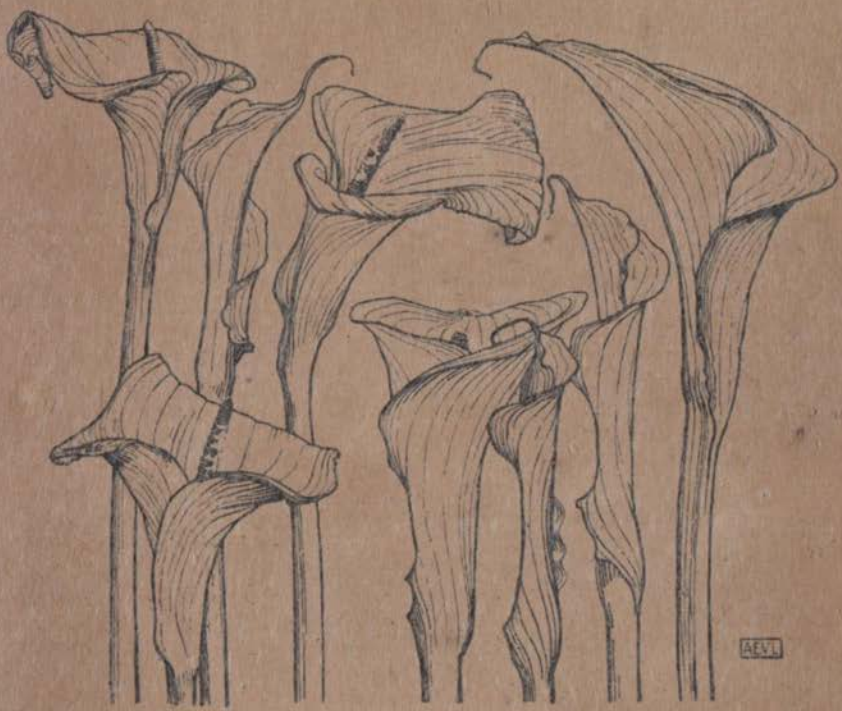

Fig. 145.—Arum Lily. Flower spike yellow, enclosed by white spathe.

broken colours, over those mechanically printed from rollers, has been well demonstrated by Mr. Arthur Silver and other contributors to the Arts and Crafts Exhibition.

Of the designs we give, the diaper (Fig. 141) is for textile and might be executed in two tones of one colour, or two colours gray in tone. The Iris frieze and the spot and powder pattern (Figs. 133 and 139) are for wall decoration. Fig. 149 is to be

FIG. 146.—Tomato. Flowers yellow. Fruit yellow to scarlet.
FIG. 147.—Potato. Flowers purple white. Fruit green.

Fig. 148.—Stencil panel based on Tomato.

Fig 149.—Water Lily stencil for wall hanging

stencilled on a light-coloured cloth with a darker tone of the same colour. The door panel (Fig. 148) might be done in one or more colours.

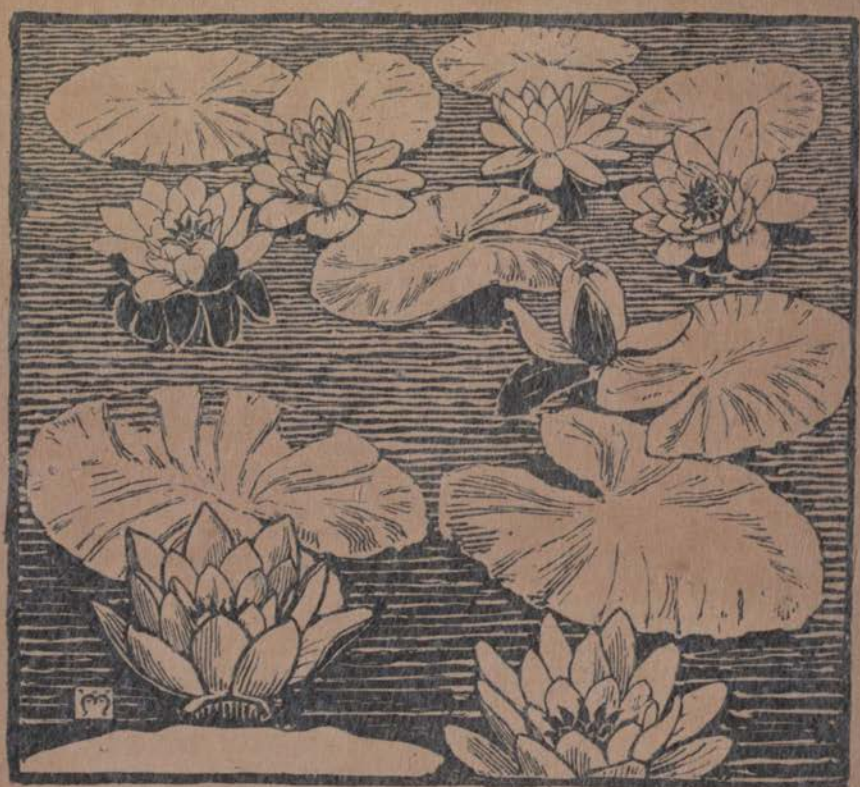

FIG. 150.—Water Lily. Flowers white with gold centre. Leaves 12 inches long.

FIG. 251.—Vine.

FIG. 152.—Primula. Height 10 inches. Flowers white to crimson.

CHAPTER IX

WALL PAPERS

WALL papers may be divided into those for the dado, the filling, the frieze, and the ceiling.

The dado is the supporting member, and therefore the ornament may be heavy in mass or tone, but must be extremely simple and severe in form; it is moreover too low down for any careful examination of an elaborate pattern. The frieze should be bold and heavy in treatment, as it is to be seen at a greater distance, and forms a border for the filling; it should contain lines appearing to give support to the cornice above. The "filling" of the space between the dado and frieze should always appear flat; anything in the nature of strong spots or violent contrast of tone or colour must be avoided, partly because these would have an unpleasant effect of cutting into and weakening

the wall, and partly because the filling has to serve as a background for pictures, and must not compete with them in *value*.

Wall papers are printed from blocks or rollers 21 inches wide, on paper 22 inches wide; the length of the block may be rather

Fig. 153.—Ceiling paper based on the Vine.

more or less than 21 inches, but not much more, or the block would become unwieldy for the hand printer. In machine work, where a roller is used, it is not desirable to go beyond 17 inches in the length. The frieze is generally 7, 10½, or 21 inches wide.

FIG. 154.—Lilium Croceum. Flowers orange, leaves in helical curve up stem. Height 36 inches.
FIG. 155.—Lilium Pomponicum. Two to four yellow flowers greatly reflexed. Twenty-four inches high.

The repeat of a pattern should either be clearly seen, and a feature made of it, or it should be not noticeable. When the repeat of the design is obvious, the more conventional the design the better (Chap. I.).

An important device for making the repeat unobtrusive is that known as stepping or dropping the pattern (see Chapter IV.).

ROYAL ASIAT

Fig. 156.—Dado design based on Lilies.

It would appear at first glance that the limit of 21 inches restricts the width; but if a "step" or "drop" pattern is arranged within a space like the sketch over-leaf, so that the ornament in the spaces A A when placed together in the next piece of paper by the side of space B forms the complete pattern within a diamond, then the pattern will be really 42 inches wide (Fig. 164). Again, if the design in the one space of 21 inches is

FIG. 157.—Oriental Poppy. Six scarlet petals, black at base. Height 40 inches.

symmetrical on a diagonal line, then the block may be swung round a quarter at each impression, thus forming a pattern 42 inches square (see sketch).

Care should be taken when colouring a design to use as few colours as possible, as a separate block is required for each colour and another for the outline. Some of the most successful designs

FIG. 153.—Dado based on Lily.

are those executed in monochrome, or in one colour on a paper of another colour.

In making the actual block, the design is transferred upon it,

FIG. 159.—Peony. Five unequal sepals; 5, 10, or more petals, crimson to white. All parts very irregular in growth.

FIG. 160.—Wall paper and frieze based on Peony. Repeat 21 inches by 10½ inches.

FIG. 161.—Iceland Poppy. Height about 10 inches. Colour white, red, and yellow.

and the parts which are required on this particular block coloured in. The workman then proceeds to cut away the background in much the same manner as a woodcut is produced, the outline being formed by flat brass wire driven edgeways into the wood. In the cheaper kinds of paper, which are printed by machinery, the

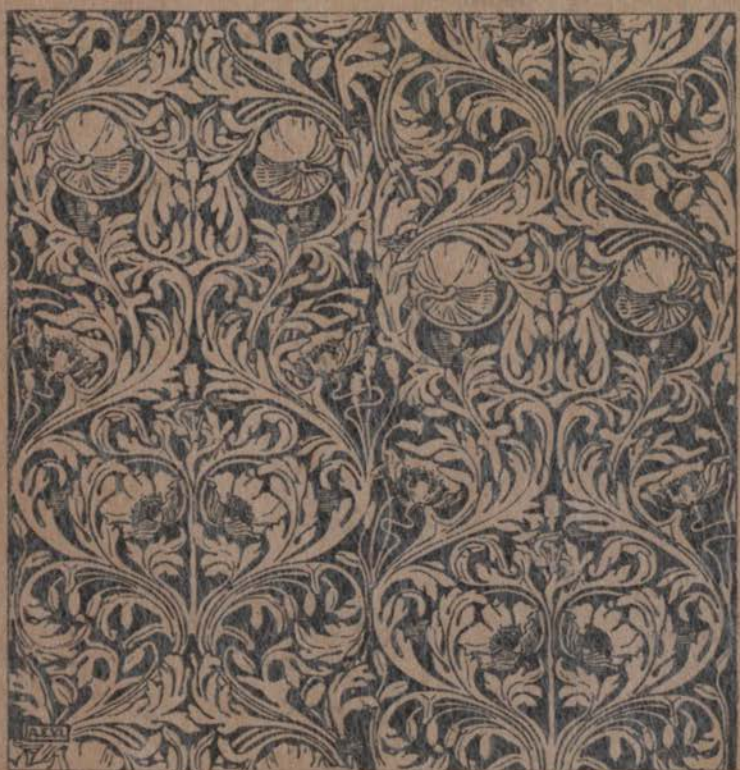

FIG. 162.—Design for wall paper on the Iceland Poppy. Repeat 10½ inches by 16 inches.

different colours are printed at once, the paper passing under the rollers in succession.

A much more expensive wall paper is that stamped in relief, to imitate stamped leather: in this method the paper is stamped into a mould, and is afterwards usually gilt and lacquered, or treated in a variety of ways by colouring.

FIG. 163.—Sea Holly. Twenty-four inches high. Blue leaves and florets.

In wall papers, as in all other sorts of decoration, very much depends on the colours employed, more, perhaps, even than on the form of the design. Fig. 162, for instance, might be made very unsuitable for wall decoration by the injudicious use of contrasting colours, and especially of contrasting tones. The ceiling paper, too (Fig. 153), in the black and white necessary for reproduction would be far too strong for its purpose, and in practice would be printed in two very light shades of the same colour. Ceiling papers, by the way, must be designed so that they do not look upside down when seen from either end of the room.

FIG. 164.—Wall paper founded on Sea Holly. Illustrating arrangement of *drop pattern*. Repeat 42 inches by 21 inches.

FIG. 165.—Teasel.

Fig. 166.—Tile diaper suitable for dado.

CHAPTER X

TILES

Fig. 167.—Fritillary. Eighteen inches high. Flowers purple brown.

Tiles may be used for decorating walls, reredoses, splays, jambs, friezes, and hearths of fireplaces, cabinet work, pavements, and many other purposes. They are generally 6 to 8 inches square, but are also made in hexagonal, octagonal, and other shapes. Most tiles, whether plain, printed, or in relief, are made by pressing powdered clay into the moulds; this is done to ensure the least possible warping and uneven shrinking in firing. For the same reason the raised parts of a tile should be as equally distributed as possible. When the tile is in high relief, however, the plastic clay is generally cast in moulds. The following are the most important kinds of decorated tiles:—

Tiles painted by hand (Fig. 180), with the ordinary enamel colours used to decorate porcelain, and afterwards glazed. For

obvious reasons of economy a design intended to be so executed must be effective at as little cost in labour as possible, and should not be over-loaded with detail.

Printed tiles (Figs. 166, 169, 172, 174). Here the pattern is transferred from an engraved copper plate, by means of transfer papers, on to the tile when it is in a biscuit or unglazed state. This

FIG. 168.—Teasel. Height 4 feet. Florets lilac.

process is the cheapest and the most extensively used. The designer has few if any technical restrictions.

Stencil plates are largely used in the decorating of tiles and give a richer effect than we get in those which are mechanically printed. Quite a number of plates are often used for the same pattern (see Chap. VIII.); by this means fine effects of broken colour are obtained.

Majolica or Embossed tiles (Fig. 178) have the pattern in slight relief, and are made more effective by being dipped in a transparent coloured glaze, which runs into the hollows, emphasises

FIG. 169.—Hexagonal tiles based on Teasel.

the forms, and gives a very rich effect. The high lights may be further lightened by wiping off the glaze where required. Sometimes more than one coloured glaze is used, applied with a brush.

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FIG. 170.—Flowering Rush. Two to four feet high. Flowers rose colour.

In *Incised tiles* the pattern is incised or stamped in, and emphasised as above with a rich transparent glaze.

FIG. 171.—Tiles for splays of fire-place based on Flowering Rush.

Pâte sur Pâte is the painting in a white or coloured "slip" (clay thinned with water) on a ground of a different colour. This slip, which may be coloured to 10 per cent. with metallic oxides by well grinding, has to be applied to the unbaked article; and when it is fired the thinner layers have a translucent effect, slightly showing the colour of the ground beneath. The "slip" must always be of the same clay as the ground to ensure equal shrinkage when fired.

FIG. 172.—Tile diaper on the Clematis.

This process is recommended to students. A dried unbaked piece of pottery is easily obtained from a manufacturer, together with the clay to form the "slip," which should be made just thin enough to be worked with a brush. It should be applied in layers, care being taken

FIG. 173—Purple Clematis. Flowers 4 inches across.

that the layer beneath is quite dry. The ornament unbaked will appear as an opaque mass, and the appearance of the ground colour through the thin layers when baked must be allowed for. Whilst unbaked the ornament may be worked upon with steel tools and with the liquid "slip" to any extent, but when baked no alteration is possible. We would refer the student to the article in the second volume of *The Studio* by M. Solon, the introducer of the process.

FIG. 174.—Tiles for hearth designed from the Dahlia.

Encaustic tiles are moulded with the clay in a plastic state, the pattern being cut or stamped in to $\frac{1}{16}$ of an inch below the surface, so as to form hollows in which "slips" of different-coloured clays are poured. When these become as hard as the body of the tile the surface is made even by scraping with a steel tool. They are very useful for pavements and hearths, on account of the depth of the coloured decoration, and for obvious reasons must be very simple in design.

FIG. 175.—Single Dahlia. Flowers white to yellow and crimson. Height 4 feet.

The designer of tiles must of course keep before him the fitness of his design for the position it is to occupy as well as the process by which it is to be executed. For instance a hearth or floor tile (Fig. 174) should appear as a plan and very flat and

FIG. 176.—Perennial Corn-flower. Leaves sheathed round stem. Florets white and blue.

must not contain lines of growth in a vertical direction, like the tile for a splay (Fig. 171). We may add that by arranging a design diagonally across a 6 inch tile on similar lines to Fig. 153, a pattern 12 inches square may be obtained.

FIG. 177.—Opium Poppy. Flowers white to crimson and purple. Height 30 inches.

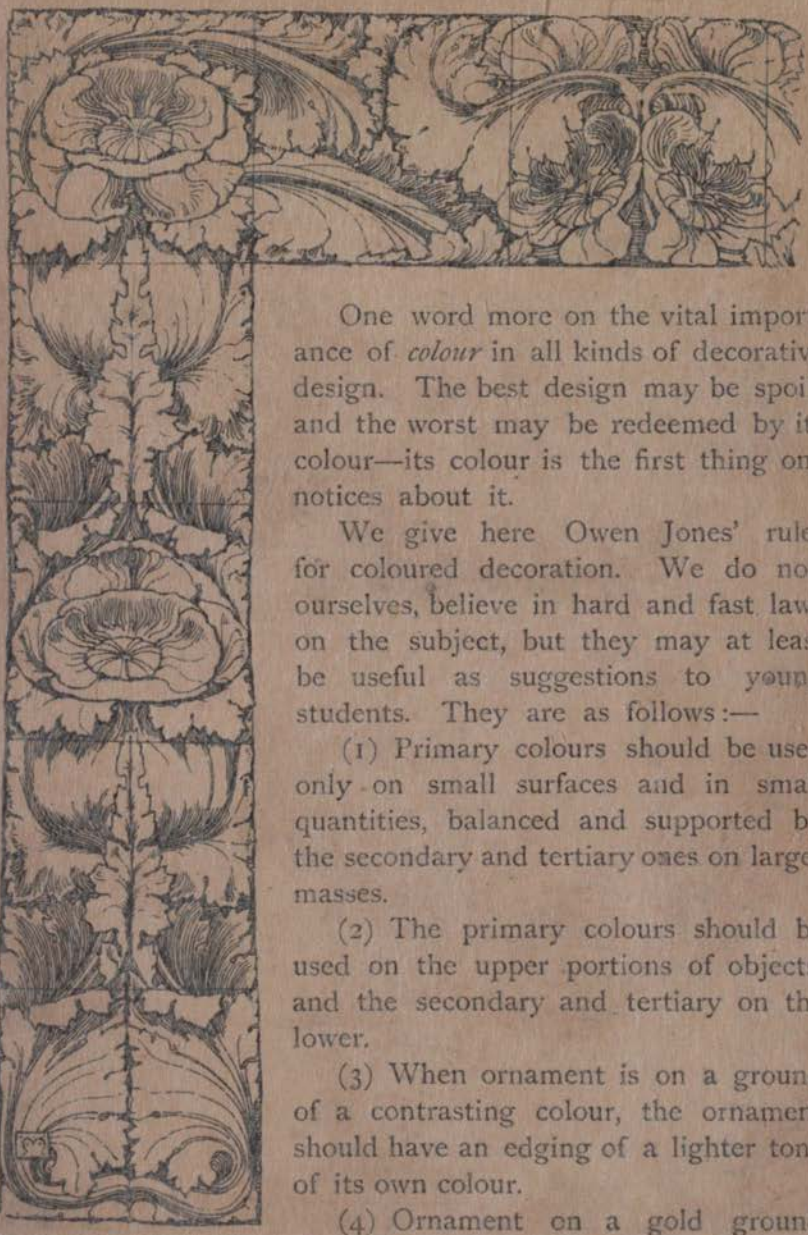

Fig. 178.—Poppy design for embossed tiles for fireplace.

One word more on the vital importance of *colour* in all kinds of decorative design. The best design may be spoilt and the worst may be redeemed by its colour—its colour is the first thing one notices about it.

We give here Owen Jones' rules for coloured decoration. We do not, ourselves, believe in hard and fast laws on the subject, but they may at least be useful as suggestions to young students. They are as follows:—

(1) Primary colours should be used only on small surfaces and in small quantities, balanced and supported by the secondary and tertiary ones on larger masses.

(2) The primary colours should be used on the upper portions of objects, and the secondary and tertiary on the lower.

(3) When ornament is on a ground of a contrasting colour, the ornament should have an edging of a lighter tone of its own colour.

(4) Ornament on a gold ground should be separated by an edging of a darker tone.

(5) Ornament on white or black ground may be left without outline or edging.

FIG. 179.—Arrowhead. Eighteen to thirty inches high. Flowers white, upper ones sterile.

(6) No composition can ever be perfect in which any one of the three primary colours is wanting, either in its natural state or in combination.

But, after all, there is only one way, we must repeat, in which colour may be learned, that is by the study of Nature, in her withered leaves, the plumage of her birds, her flesh colours, her flowers and sun-sets. In Nature the student will find a quite inexhaustible variety of schemes of colour which he must not simply glance at but try to copy. Of course he will fail to realise any one of them to his satisfaction, but at least he will have learned what colour means, and will have found out for himself that colour is the crowning glory of art.

FIG. 180.—Painted tiles for frieze based on Arrowhead.

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